VLASOV, K.B.; ISHMUKHAMETOV, B.Kh.

Equations of motion and state for magnetoelectric media. Zhur.
eksper. i teor. fiz. 46 no.1:201-212 Ja'64.   (MIRA 17:2)

1. Institut fiziki metallov AN SSSR.

ACCESSION NR: AP4012549 S./C056/64/046/001/0223/0231

AUTHORS: Vlasov, K. B.; Filippov, B. N.

TITLE: Rotation of ultrasound polarization plane in metals in a strong magnetic field

SOURCE: Zhurnal eksper. i teoret. fiz., v. 46, no. 1, 1964, 223-231

TOPIC TAGS: ultrasonics, ultrasound polarization, polarization plane, metal ultrasound, plane rotation, magnetic field ultrasound, magnetically polarized metal, metal polarization, conduction electron, rotation constant, fermi surface

ABSTRACT: Singularities of the propatation and absorption of ultrasound in magnetically polarized metals whose conduction electrons have arbitrary dispersion are considered by quasiclassical theory at low temperatures, when the singularities are determined by the interaction between the ultrasound and the conduction electrons.

Card 1/2

ACCESSION NR: AP4012549

The value of the constant determining the plane of rotation of ultrasound polarization in a strong magnetic field (characteristic radius of cyclotron orbit smaller than electron mean free path and ultrasound wavelength) is determined. Estimates are made of the frequency, field, and angular dependences of the rotation constant for different types of Fermi surfaces. The field and frequency intervals in which this constant can be expressed in terms of the Hall constant, the electric conductivity, the deformation potential, or other characteristics, are established. The numerical maximum estimate for the constant of rotation is 10^{-4} rad/cm-Oe, which in fields on the order of 10 kOe yields a polarization plane rotation angle of about 1 radian when the wave travels 1 cm. "In conclusion, we are grateful to V. M. Kontorovich for supplying his results prior to publication." Orig. art has: 68 formulas.

ASSOCIATION: Institut fiziki metallov AN SSSR (Metal Physics Institute, AN SSSR)

Card   2/2

ACCESSION NR: AP4009371   S/0126/63/016/006/0801/0807

AUTHORS: Vlasov, K.B.; Filippov, B.N.

TITLE: Rotation of polarization plane and circular magnetic dichroism of ultra-
sound in magnetopolarized metals whose electrons of conductivity have quadratic
dispersion law

SOURCE: Fizika metallov i metallovedeniye, v. 16, no. 6, 1963, 801-807

TOPIC TAGS: polarization plane, circular magnetic dichroism, ultrasound, magneto-
polarized metal, quadratic dispersion law, elastic wave, deformation potential,
Fermi surface

ABSTRACT: The authors compute the constant determining the rotation of the polari-
zation plane of elastic waves and the relation of the axes of the ellipse giving
rise to elliptical polarized elastic waves in magnetopolarized metals. The compu-
tations are made for a wide range of frequencies of ultrasound and constant magnetic
fields. For this the deformation potential is studied. The authors find the range
of frequencies and the field in which the rotation constant and the ratio of the
axes of the ellipse are functions of the Fermi surface and the deformation potential.

Card   1/2

ACCESSION NR: AP4009371

They show that in the case where the length of the wave of ultrasound, λ, is of the order of depth of penetration δ of the electromagnetic wave, the radius r_c of the cyclotronic orbit is of the order of length of the free run ℓ of an electron, $\ell \ll \lambda$, the ratio of the axes of the ellipse is maximized. Orig. art. has: 48 formulas.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Physics of Metals AN SSSR)

SUBMITTED: 01Jun63   DATE ACQ: 03Feb64   ENCL: OO

SUB CODE: PH   NO REF SOV: 005   OTHER: 002

Card   2/2

L 17615-63
Pt-4   JD

EWT(1)/EWP(q)/EWT(m)/BDS/ES(s)-2   AFFTC/ASD/ESD-3/IJP(C)/SSD 68.
S/056/63/044/003/025/053   67

AUTHOR: Vlasov, K. B. and Filippov, B. N.

TITLE: Dynamic elasticity moduli, rotation of the polarization plane, and coupled longitudinal-transverse waves in magneto-polarized metals

PERIODICAL: Zhurnal eksperimental'noy i tekhnicheskoy fiziki, v. 44, no. 3, 1963, 922-933

TEXT: In addition to the absorption of ultra-sound in magneto-polarized media one may expect the existence of the not yet observed effects of the rotation of the polarization plane or the existence of coupled longitudinal-transverse waves. Phenomenologically, these effects can be described by a dynamic elasticity modulus tensor (K. B. Vlasov, Ref. 6: FMM, 4, 543, 1957; V. P. Silin, Ref. 7: ZhETF, 38, 977, 1960). The present paper presents the derivation of a microscopic quasi-classical theory of these moduli for the case of metals in a constant magnetic field. The equations of motion defining the features of absorption and propagation of elastic waves in magneto-polarized metals are derived for a broad frequency and constant magnetic field strength range and for arbitrary directions of propagation and magnetic field orientation using the free electron model. Explicit expressions

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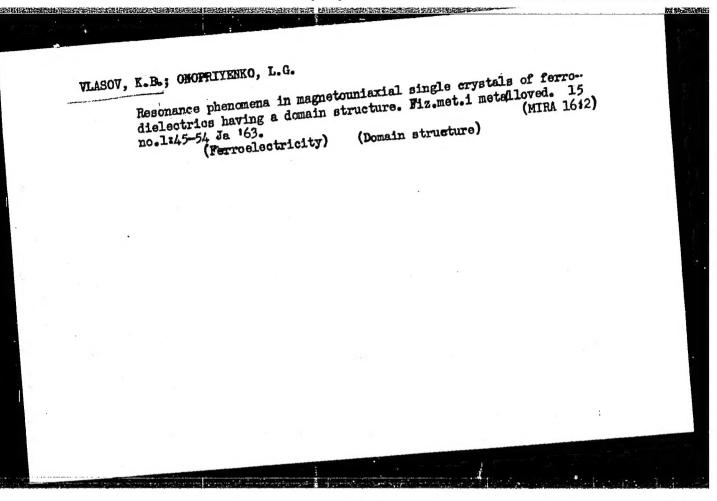L 17615-63

Dynamic elasticity moduli...

for the dynamic modulus of elasticity components involved in the equations of motion are derived for the case of strong magnetic fields. The expressions are given in terms of the atomic constants, electron mean free path, ultrasound frequency, and magnetic field strength. Formulas for specific rotation of the polarization plane, ratio of the ellipse axes, and the component of the dynamic elasticity modulus defining the coupling constant of longitudinal-transverse or transverse-longitudinal waves have been obtained in terms of the cyclotron frequency Ω, ultrasound frequency and wave vector k, and velocity v_0 and mean free path l of conduction electrons on the Fermi surface. Monotonous increase of specific rotation with the growth of kl up to saturation and oscillations of the coupling coefficient with variations of kv_0/Ω due to geometric resonance are predicted. There are 2 figures.
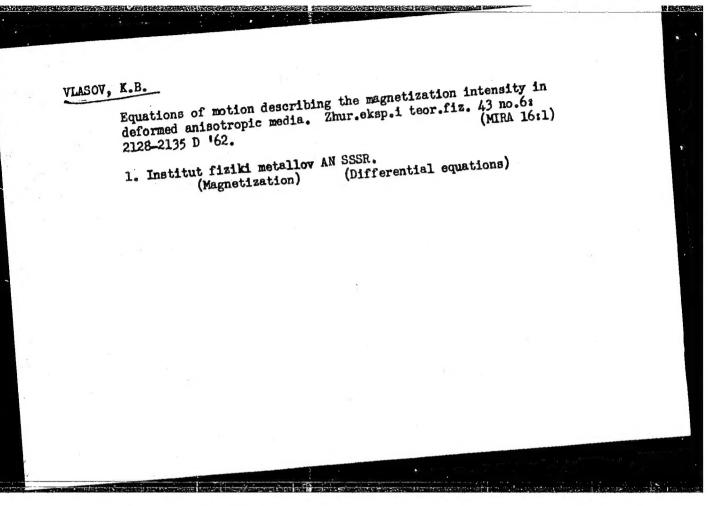
ASSOCIATION: Institut fiziki metallov Akademii nauk SSSR (Institut for the Physics of Metals of the Academy of Sciences USSR)

SUBMITTED: July 18, 1962

Card 2/2

VLASOV, K.B.; ONOPRIYENKO, L.G.

Resonance phenomena in magnetouniaxial single crystals of ferro-
dielectrics having a domain structure. Fiz.met.i metalloved. 15
no.1:45-54 Ja '63.   (MIRA 16:2)
        (Ferroelectricity)   (Domain structure)

VLASOV, K.B.

Equations of motion describing the magnetization intensity in deformed anisotropic media. Zhur.eksp.i teor.fiz. 43 no.6:
2128-2135 D '62.
(MIRA 16:1)

1. Institut fiziki metallov AN SSSR.
(Magnetization)   (Differential equations)

VLASOV, K.B.; FILIPPOV, B.N.

Dynamic elasticity moduli, rotation of the polarization plane of elastic waves, and coupled longitudinal-transverse waves in magnetically polarized metals. Zhur. eksp. i teor. fiz. 44 no.3:922-933 Mr '63.
(MIRA 16:3)

1. Institut fiziki metallov AN SSSR.
(Elasticity)   (Waves)   (Magnetic fields)

S/126/63/015/001/005/029
E039/E435

24,2200

AUTHORS: Vlasov, K.B., Onopriyenko, L.G.

TITLE: Resonance effects in uniaxially magnetized single crystals of ferroelectrics possessing domain structure

PERIODICAL: Fizika metallov i metallovedeniye, v.15, no.1, 1963, 45-54

TEXT: Resonance absorption of high frequency magnetic fields in ferroelectrics possessing domain structure has two regions of magnetic dispersion. One is due to uniaxial Larmor precession of the magnetization vector in the domain; the other is in a region of radio-frequency connected with the oscillatory motion of the boundaries. These regions are examined for ellipsoidal samples of uniaxially magnetized single crystals in a constant magnetic field arbitrarily orientated in one of the principal planes of the ellipsoid. An approximate solution of this problem is described, giving the dynamic properties of the boundary layer by introducing an effective mass per unit area of the boundaries. Equations of motion describing the behaviour of the magnetic system are obtained from the "principle of least action". The form of the Lagrangian function is determined firstly for a single phase

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Resonance effects ...

S/126/63/015/001/005/029
E039/E435

magnetization and then for a two phase magnetization system.
The dependence of three natural frequencies are obtained from the
magnitude and direction of the constant magnetic field with respect
to the crystallographic axes.   There are 2 figures.

ASSOCIATION: Institut fiziki metallov AN SSSR
             (Institute of Physics of Metals AS USSR)

SUBMITTED: June 15, 1962

Card 2/2

VLASOV, F. B.; MITSEK, A. I.

Thermodynamic theory of materials presenting the possibility of the coexistence of ferromagnetism and antiferromagnetism. Part 1: Magnetization processes. Fiz. met. i metalloved. 14 no.4:487-497 O '62.   (MIRA 15:10)

1. Institut fiziki metallov, Ural'skiy gosudarstvennyy universitet imeni A. M. Gor'kogo.

(Magnetization)

VLASOV, K. B.; MITSEK, A. I.

Thermodynamic theory of materials presenting the possibility
of the coexistence of ferromagnetism and antiferromagnetism.
Part 2: Temperature dependence of parameters determining
magnetic conditions in the form of a magnetization curve.
Fiz. met. i metalloved. 14 no.4:498-502   O '62.
                                          (MIRA 15:10)

1. Institut fiziki metallov AN SSSR i Ural'skiy gosudarstvennyy
universitet imeni A. M. Gor'kogo.

(Thermomagnetism)

S/126/63/015/001/005/029
E039/E435

24,2200

AUTHORS: Vlasov, K.B., Onopriyenko, L.G.

TITLE: Resonance effects in uniaxially magnetized single
             crystals of ferroelectrics possessing domain structure

PERIODICAL: Fizika metallov i metallovedeniye, v.15, no.1, 1963,
             45-54

TEXT: Resonance absorption of high frequency magnetic fields in
ferroelectrics possessing domain structure has two regions of
magnetic dispersion.   One is due to uniaxial Larmor precession of
the magnetization vector in the domain;   the other is in a region
of radio-frequency connected with the oscillatory motion of the
boundaries.   These regions are examined for ellipsoidal samples of
uniaxially magnetized single crystals in a constant magnetic field
arbitrarily orientated in one of the principal planes of the
ellipsoid.   An approximate solution of this problem is described,
giving the dynamic properties of the boundary layer by introducing
an effective mass per unit area of the boundaries.   Equations of
motion describing the behaviour of the magnetic system are obtained
from the "principle of least action".   The form of the
Lagrangian function is determined firstly for a single phase
Card 1/2

VB

Resonance effects ...

S/126/63/015/001/005/029
E039/E435

magnetization and then for a two phase magnetization system.
The dependence of three natural frequencies are obtained from the
magnitude and direction of the constant magnetic field with respect
to the crystallographic axes.   There are 2 figures.

ASSOCIATION: Institut fiziki metallov AN SSSR
            (Institute of Physics of Metals AS USSR)

SUBMITTED: June 15, 1962

Card 2/2

24.2200

AUTHOR: Vlasov, K. B.

TITLE: Equations of motion for magnetization in deformed anisotropic
               media

TEXT: The magnetization M and the mechanical moment J are interrelated by
$M = gJ$.   (1) The general equations of motion are

$$\rho \frac{DI_l}{Dt} = [JH^*]_l + \lambda_{lj} H_j^* + D_{ljkl} \frac{\partial^2 H_j^*}{\partial x_k \partial x_l},$$

$$D_{ljkl} = \frac{1}{2}\int (x_k - x_k')(x_l - x_l')\frac{1}{T} L_{lj}^c \, dr',$$ (16)   and

$$H_l^* = \frac{\rho}{J^3}\left[\frac{DI}{Dt}, J\right]_l + \beta_{lj}\rho \frac{DI_j}{Dt} + D'_{ljkl}\rho \frac{\partial^2}{\partial x_k \partial x_l}\left(\frac{DI_j}{Dt}\right),$$ (23)

where $H^* = -\partial\phi/\partial I$,   (6) $\lambda_{ij} = \lambda_{ij}^0 + \lambda_{ijkl}M_k M_l + \lambda_{ijklmn}M_k M_l M_m M_n + \dots,$ (24)

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Equations of motion for ...

S/056/62/043/006/027/067
B112/B186

$$L_{ij}^{C} = T\lambda_{ij}\delta(r - r'), \quad \text{and} \quad \rho\frac{DI}{Dt} = \rho\frac{dI}{dt} - \rho[\dot{\omega}I] = \frac{\partial J}{\partial t} + \frac{\partial}{\partial x_k}(J\dot{u}_k) - [\dot{\omega}J],$$

(17)

Under certain assumptions and approximations the equations (16) and (23)
go over to the equations of Landau and Lifshits, Bloch, Gilbert and others.

ASSOCIATION: Institut fiziki metallov Akademii nauk SSSR (Institute of
               Metal Physics of the Academy of Sciences USSR)

SUBMITTED: April 29, 1962

Card 2/2

42247

S/126/62/014/004/003/017
E032/E314

24.2200

AUTHORS: Vlasov, K.B. and Mitsek, A.I.

TITLE: On the thermodynamic theory of the existence of ferro-
             magnetism and antiferromagnetism in matter.
             II. Temperature-dependence of parameters determining
             the magnetic state and the form of the magnetization
             curve

PERIODICAL: Fizika metallov i metallovedeniye, v. 14, no. 4,
             1962, 498 - 502

TEXT: The theory developed by the present authors in the
previous paper (FMM, 1962, v.14, no. 4, 486) is used to discuss
the temperature-dependence of quantities determining the form
of the magnetization curves at points which would be the phase-
transition points if the ferro- and antiferromagnetic sub-systems
were isolated, i.e. the Curie point Θ_C for the ferromagnetic
sub-system and the Neel point Θ_M for the antiferromagnetic
sub-system.   An interaction of the form given by Eq. (1.4) of
the preceding paper (c.f. preceding abstract) ensures that there
Card 1/3 У REF S/126/62/014/004/002/617 for Part I

On the thermodynamic theory ....

S/126/62/014/004/003/017
E032/E314

is a single transition point $\oplus$. Two special cases are considered, namely, $\oplus_C \gg \omega_N$ and $\oplus_C \ll \omega_N$. In the first of these, it is shown that when the interaction between the sub-systems is taken into account, then provided it is small, it is found that 1) is has no effect on the temperature-dependence of the spontaneous magnetization and the susceptibility, 2) when $M \neq 0$, antiferromagnetic order will appear and 3) the phase-transition temperature $\oplus$ will increase. It is shown in the second of the above two cases that: a) when the temperature is less than or equal to $\oplus$ weak ferromagnetism appears in addition to the antiferromagnetic ordering; b) the form of the temperature-dependence of the antiferromagnetic-order parameter ℓ is not affected when the interaction between the sub-systems is taken into account in the form of Eq. (1.4) of the previous paper and c) the phase-transition temperature is increased and the character of the transition changes from the antiferromagnetic type to the ferromagnetic type. The paper is concluded with a review of the general implications of the theory with regard to the form of the magnetization curves.

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42246

S/126/62/014/004/002/017
E032/E514

AUTHORS: Vlasov, K.B. and Mitsek, A.I.

TITLE: On the thermodynamic theory of the existence of ferro-
magnetism and antiferromagnetism in matter.
I.   Magnetization processes

PERIODICAL: Fizika metallov i metallovedeniye, v. 14, no. 4,
1962, 487 - 497

TEXT: It has been suggested that the one-directional
anisotropy observed in unordered Ni-Mn and Cu-Mn alloys can be
explained by assuming the presence of ferro- and antiferromagnetic
states. For Ni-Mn alloys, which approach the stoichiometric
composition of Ni_3Mn, it has been assumed that the unordered
(ferromagnetic) matrix contains regions enriched with Mn which
are in the antiferromagnetic state [Kouvel and Graham, J.Phys.
Chem.Sol., 1959, 11, No. 3-4, 220;   Kouvel, J. Phys. Chem.Sol.,
1961, 21, No. 1-2;   Volkenshteyn and Turchinskaya, Doklad na
Soveshchanii po nizkim temperaturam (Report on Conference on Low
Temperatures], Kiev, 1961].   It is noted that it is not clear
whether these regions are crystallographically separated from the
Card 1/5

On the thermodynamic ....

matrix. A thermodynamic theory is now developed for the description of these phenomena. It is assumed that the magnetic material can be regarded, on the zero-order approximation, as a combination of a ferromagnetic (or ferrimagnetic) and antiferro- magnetic sub-system. Large exchange interaction within each sub- system give rise to the ordering of the magnetic moments. The exchange and magnetic interactions between the sub-systems, the magnetic interaction within each system, the interaction of each sub- system with the external magnetic field and the possible resulting nonuniformity of the magnetic moments are looked upon as pertur- bations. The analysis is confined to the case where antiferro- magnetic sub-systems may be regarded as consisting of two magnetic sub-lattices with magnetizations $\underline{M}_1$ and $\underline{M}_2$ $\left(\left| \underline{M}_1 \right| = \left| \underline{M}_2 \right| = \underline{M}_0 \right)$.

The thermodynamic potential due to the departure from the zero- order state is then given by:

$$\underline{\underline{\Phi}} = \frac{1}{V} \int \tilde{\underline{\Phi}}(\underline{r}) d\underline{r}; \quad \underline{\Phi}(r) = F(\underline{r}) - (\underline{M} + \underline{m})\underline{H} \tag{1.1}$$

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On the thermodynamic ....

where $\underline{M}$ is the magnetization of the ferromagnetic sub-system

$$\underline{m} = \underline{M}_1 + \underline{M}_2; \quad \underline{1} = \underline{M}_1 - \underline{M}_2$$

and $F(\underline{r})$ is the sum of 1) the increase in the free exchange energy due to the perturbation, 2) the free energy of irregularities and 3) the crystallographic free energy of magnetic anisotropy. The present theory is more general than that of Meiklejohn and Bean (Phys. Rev., 1957, 105, 904) because in the expression for the exchange energy of ineteraction between the sub-systems

$$E_{B3} = -(2M_s M_o)^{-1}\left\{C(\underline{M1}) - D.(\underline{mM})\right\} \qquad (1.4)$$

where M_s is the spontaneous magnetization, it is not assumed that $D = -C$. The general problem is therefore to vary the thermodynamic potential in order to find the equilibrium values of $\underline{M}$, $\underline{1}$ and $\underline{m}$ for each value of $\underline{H}$ and thereby obtain the magnetization curve. In general, the problem is rather difficult

Card 3/5

On the thermodynamic ....

and therefore only special cases are considered in this paper.
The analysis of special cases is based on the following expression
for the thermodynamic potential

$$\Phi = \Phi_o + B\cos^2\eta + B'\cos^2\psi - C\cos(\psi - \eta) - M_s H\cos(\eta - \omega) -$$

$$- \frac{1}{2}\left\{\chi_\| \cos^2(\psi - \omega) + \chi_\perp \sin^2(\psi - \omega)\right\} \tag{2.1}$$

where $\chi_\perp$ and $\chi_\|$ are the two susceptibilities of the antiferro-
magnetic sub-system and η, ψ and ω are the angles of $\underline{M}$, $\underline{l}$
and $\underline{H}$ with the z-axis. The equilibrium values of η and ψ
are determined from the condition that Φ should be a minimum and
it is then found that the solutions may be divided into two
classes, namely, $q < 1$ and $q > 1$, where $q = C/2|B'|$. The analysis
applies both to uniform and nonuniform (domain structure) distri-
bution of the parameters characterizing the degree of magnetic
order. Processes involving the rotation of the spontaneous
magnetization vector and the antiferromagnetic vector $\underline{l}$ in each
Card 4/5

On the thermodynamics S/126/62/014/004/002/017
                                      E032/E314

domain are discussed. The properties of the domain structure and
displacement of domain boundaries are also analysed. In the case
of a magnetically uniaxial crystal with domain structure in the
initial state and $q < 1$, the displacement of the boundaries is
inhibited and when the field is parallel to the anisotropy axis
the displacement begins only at fields of the order of H_s, where

$$H_s = Hs0/(1 - q^2); \quad H_{s0} = (C/M_s) \qquad (2.5).$$

For other orientations of the field the displacement of boundaries
should begin at even higher fields. Rotation processes should
appear at fields of the order of H_s and parallel to the
anisotropy axis. They also occur at much smaller fields for other
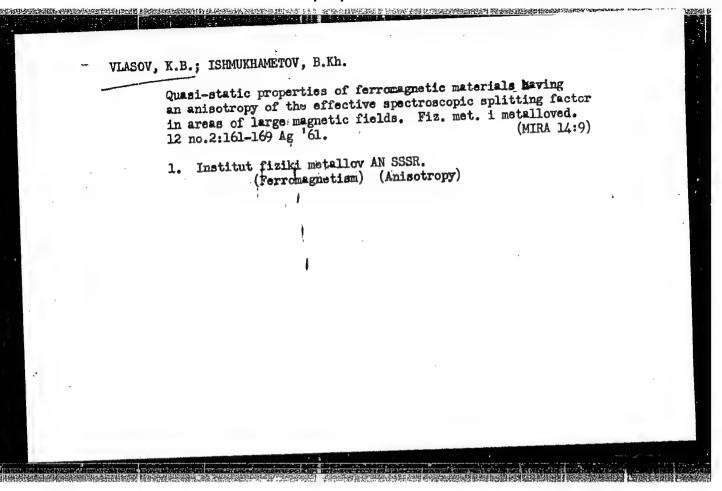orientations. There are 2 figures.
ASSOCIATION: Institut fiziki metallov (Institute of Physics of
                Metals)
                Ural'skiy gosudarstvennyy universitet im. A.M.
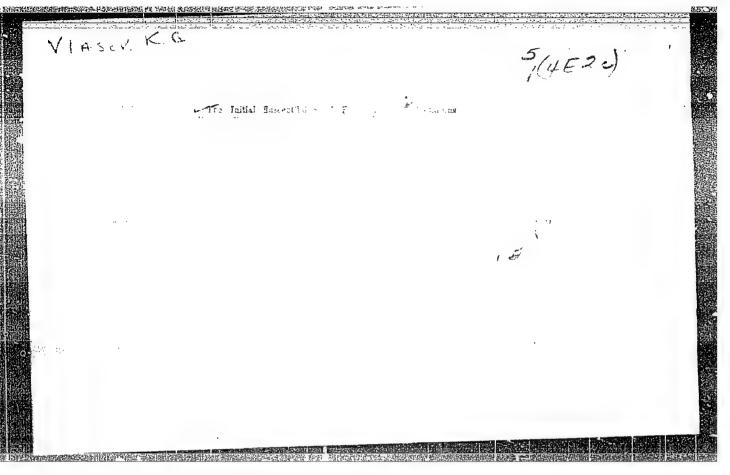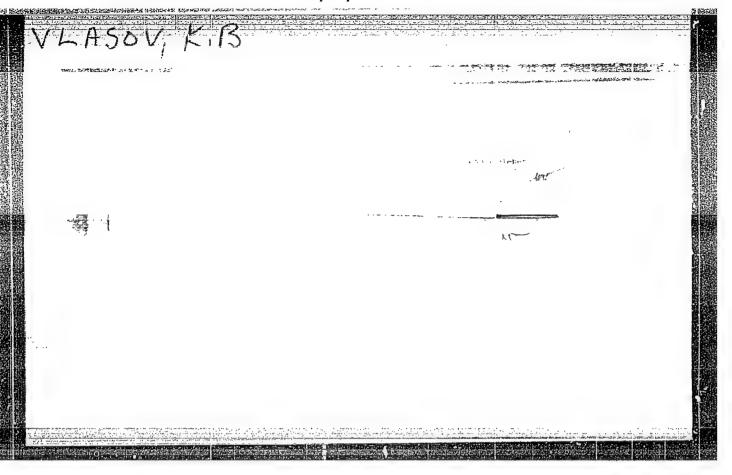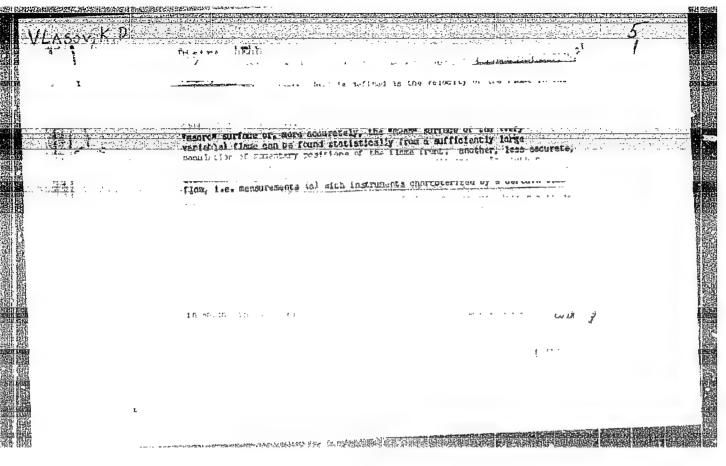   Gor'kogo (Ural State University im. A.M. Gor'kiy)
SUBMITTED: April 19, 1962
Card 5/5
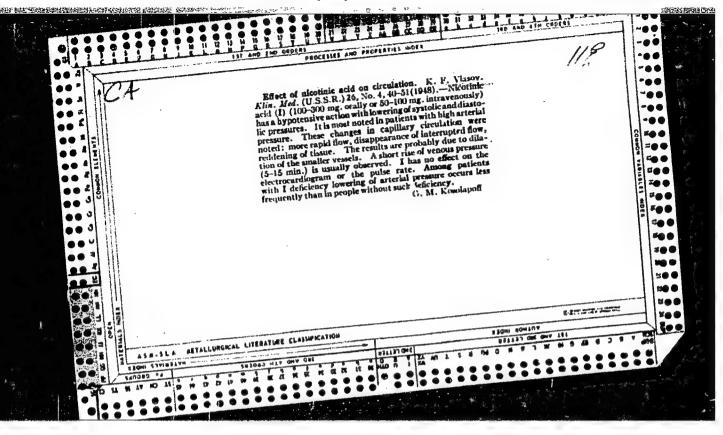
VLASOV, K.B.; ISHMUKHAMETOV, B.Kh.

Quasi-static properties of ferromagnetic materials having an anisotropy of the effective spectroscopic splitting factor in areas of large magnetic fields. Fiz. met. i metalloved. 12 no.2:161-169 Ag '61.   (MIRA 14:9)

1. Institut fiziki metallov AN SSSR.
        (Ferromagnetism) (Anisotropy)

VLASOV, K.B.; Ishmukhametov, B.Kh.

Equation of motion for the intensity of magnetization in
magnetic media. Fiz. met. i metalloved. 11 no. 1:3-9 Ja '61.
(MIRA 14:2)

1. Institut fiziki metallov AN SSSR.
        (Ferromagnetism)   (Magnetic fields)

VIASCV. K.G

$5/(4E2J)$

The Initial Sauerolie

VLASOV, K.B

VLASOV, K.D.

...mean surface or, more accurately, the mean surface of the very variegated flame can be found statistically from a sufficiently large population of momentary positions of the flame front. Another, less accurate, ... flow, i.e. measurements (a) with instruments characterized by a certain ...

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CA

Effect of nicotinic acid on circulation. K. F. Vlasov. *Klin. Med.* (U.S.S.R.) 26, No. 4, 40–51(1948).—Nicotinic acid (I) (100–300 mg. orally or 50–100 mg. intravenously) has a hypotensive action with lowering of systolic and diastolic pressures. It is most noted in patients with high arterial pressure. These changes in capillary circulation were noted: more rapid flow, disappearance of interrupted flow, reddening of tissue. The results are probably due to dilation of the smaller vessels. A short rise of venous pressure (5–15 min.) is usually observed. I has no effect on the electrocardiogram or the pulse rate. Among patients with I deficiency lowering of arterial pressure occurs less frequently than in people without such deficiency.

G. M. Kosolapoff

VLASOV, K.F.

CAND MED SCI

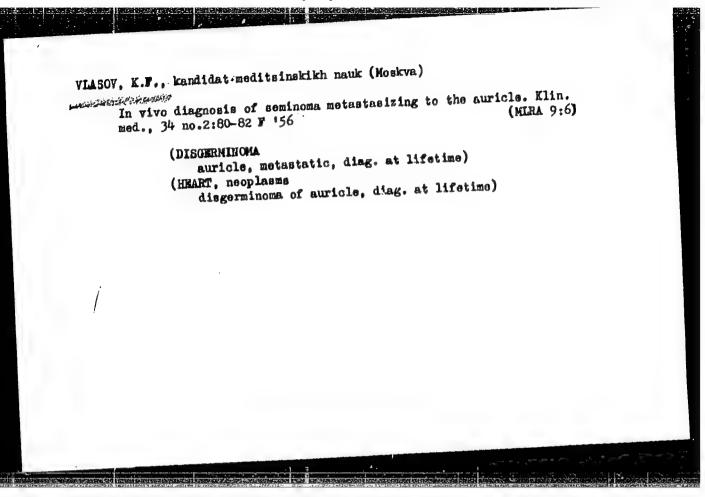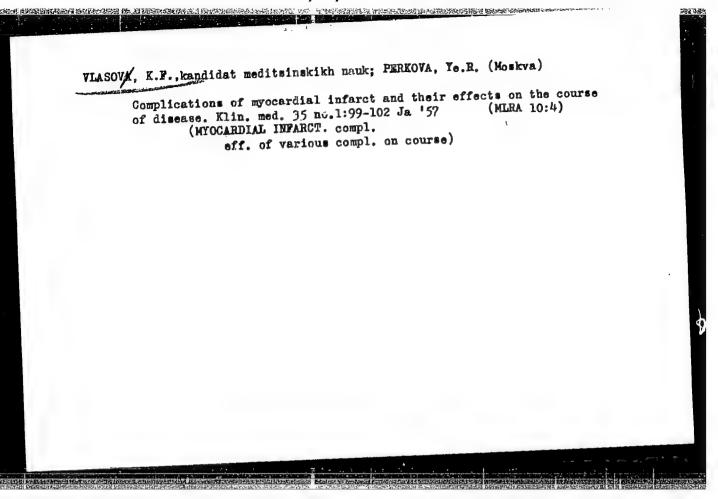Dissertation; "Effect of Nicotinic Acid on Blood Circulation."

10 May 49

Central Inst for the Advanced Training of Physicians
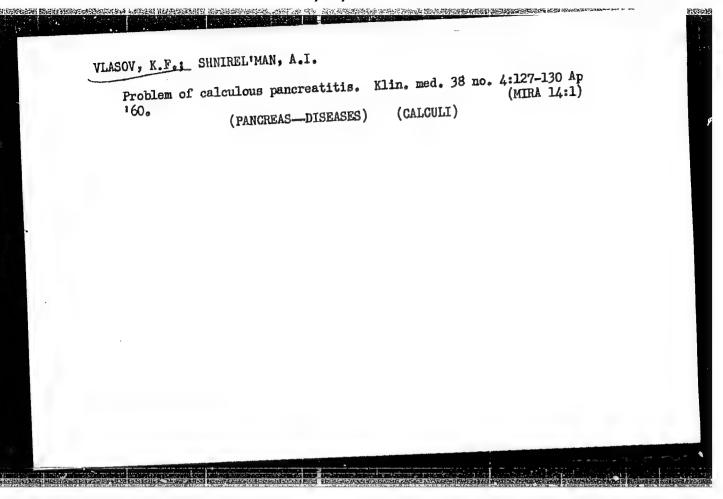
SO Vecheryaya Moskva
Sum 71

VLASOV, K. F.

Treatment of stenocardia with intravenous administration of
novocain; preliminary communication. Klin. med., Moskva
30 no.4:74-76 Apr 1952,   (CLML 22:2)

1. Candidate Medical Sciences. 2. Moscow.

VLASOV, K.F., podpolkovnik meditsinskoy sluzhby, kandidat meditsinskikh anuk

New drugs for cardiovascular diseases. Voen-med.zhur. no.9:7-12 S '55. (MIRA 9:9)

(GLUCOSIDES)

VLASOV, K.F., kandidat meditsinskikh nauk (Moskva)

In vivo diagnosis of seminoma metastasizing to the auricle. Klin.
med., 34 no.2:80-82 F '56   (MLRA 9:6)

      (DISGERMINOMA
          auricle, metastatic, diag. at lifetime)
      (HEART, neoplasms
          disgerminoma of auricle, diag. at lifetime)

VLASOVA, K.F.,kandidat meditsinskikh nauk; PERKOVA, Ye.R. (Moskva)

Complications of myocardial infarct and their effects on the course
of disease. Klin. med. 35 no.1:99-102 Ja '57   (MLRA 10:4)
    (MYOCARDIAL INFARCT. compl.
        eff. of various compl. on course)

VLASOV, K.F., kandidat meditsinskikh nauk

Liver insufficiency in acute thyrotoxicosis. Klin.med. 35 no.5:
147-149 My '57.   (MIRA 10:8)

1. Iz TSentral'nogo voyennogo Krasnoznamennogo gospitalya imeni
P.V.Mandyka (nach. N.M.Nevskiy)
        (HYPERTHYROIDISM, compl.
            hepatitis)
        (HEPATITIS, etiol. and pathogen.
            hyperthyroidism)

VLASOV, K.F.; SHNIREL'MAN, A.I.

Problem of calculous pancreatitis. Klin. med. 38 no. 4:127-130 Ap
'60.   (MIRA 14:1)
          (PANCREAS—DISEASES)   (CALCULI)

VLASOV, K.F., kand.med.nauk; ZATEYSHCHIKOV, V.A. (Moskva)

Peculiarities in the course of myocardial infarct in aged
subjects. Klin.med. no.7:82-86 '61.   (MIRA 14:8)
(HEART—INFARCTION)

VLASOV, K. F., kand. med. nauk (Moskva)

Emergency measures in acute gastriparesis (uncontrollable vomiting)
in patients with myocardial infarct. Klin. med. no.11:139-141
'61.   (MIRA 14:12)

1. Iz TSentral'nogo voyennogo krasnoznamennogo gospitalya imeni
P. V. Mandryki (nach. - zasluzhennyy vrach RSFSR N. M. Nevskiy)

(HEART--INFARCTION)   (VOMITING)
(STOMACH--DISEASES)

VLASOV, K.F., kand.med.nauk (Moskva)

Hemorrhagic pancreatic necrosis as a thromboembolic complication
in myocardial infarction. Klin.med. 40 no.6:129-130 Je '62.
(MIRA 15:9)

1. Iz TSentral'nogo voyennogo krasnoznamennogo gospitalya
imeni P.V. Mandryka.
(HEART—INFARCTION) (EMBOLISM) (PANCREAS—NECROSIS)

VLASOV, K.F., kand. med. nauk, polkovnik meditsinskoy sluzhby;
DMITROV, V.S., podpolkovnik meditsinskoy sluzhby

Recurrent myocardial infarcts in elderly persons. Voen.
med. zhur. no.10:15-17 O '65.   (MIRA 18:11)

VLASOV, K.F., kand.med. nauk; SHUL'TSEV, G.P., doktor med. nauk; DMITROV,
V.S. (Moskva)

Intramuscular administration of strophanthin and corglycon in
circulatory insufficiency in patients with coronary disorders.
Sovet. med. 26 no.5: 18-22 My'63   (MIRA 17:1)

1. Iz TSentral'nogo voyennogo Krasnoznamennogo gospitalya imeni
P.V. Mandryka (Nachal'nik zasluzhennyy vrach RSFSR N.M.Nevskiy).

TEODORI, M.I.; VLASOV, K.F.   (Moskva)

   Myocardial infarct and physical stress. Terap. arkh. 35 no.5:
   3-10 My'63   (MIRA 16:12)

VLASOV, K.F., kand. med. nauk; VAL' V.V. (Moskva)

Side effects of noxiron. Klin. med. 40 no.11:130-131 N'62
(MIRA 16:12)

VLASOV, K.P.

AUTHORS: Vlasov, K.P. and Kokushkin, N.V. (Moscow).   24-8-22/34

TITLE: On errors of measuring the flame temperature in a flow by
means of thermocouples.   (Ob oshibkakh pri izmerenii temper-
atury plameni v potoke pri pomoshchi termopar).

PERIODICAL:"Izvestiya Akademii Nauk,Otdeleniye Tekhnicheskikh Nauk"
(Bulletin of the Ac.Sc., Technical Sciences Section),
1957, No.8, pp.137-141 (U.S.S.R.)

ABSTRACT: An investigation is made of the measurement of the gas
temperature in the flame of a gasoline-air mixture inside
a turbulent flow by means of gas analysis and by means of
thermocouples. Comparison of the temperature obtained by
these methods indicates that,in most cases,the temperature
values obtained by thermocouples are higher than the
average temperature. One of the authors established in
earlier work (1), using low inertia instruments, that in
the combustion zone of a turbulent flame the temperature
in some points may vary between a minimum and a value
corresponding to full combustion; the average frequency of
the temperature changes under industrial conditions for a
flame speed of 50 m/sec may reach 1000 c.p.s., whilst the
relaxation period of the welded thermocouple of 0.5 mm
is 2 to 3 sec.   In addition to theoretical investigation

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24-8-22/34

On errors of measuring the flame temperature in a flow by means of thermocouples. (Cont.)

of the problem, experiments were carried out consisting in displacing the thermocouples rapidly from the turbulent zone of the flame to the zone of meeting of the cold and hot mixtures, whereby the displacement time was many times lower than the relaxation time of the thermocouple; the transient process was recorded by means of a loop oscillo-graph. Furthermore, analogous experiments were made consisting in placing the thermocouple alternately into a hot air stream mixed with the combustion products and in a cold air stream. It was found that under conditions of turbulent combustion, when there is a fluctuation of the temperature in the given point with time, the drop of the temperature of the thermocouple joint is lower than the temperature rise and this will inevitably lead to an increase of the readings of the thermocouple relative to the real average temperature. A qualitative evaluation of this increase can be effected only if the law of rise and fall of the temperature of the thermocouple joint is known. Measurement of the temperature in the flow of a hot gasoline-air mixture by means of thermocouples and by means of gas gas analysis does show that there is a difference in the

Card 2/3

24-8-22/34

On errors of measuring the flame temperature in a flow by means of thermocouples. (Cont.)

obtained results; measurement by means of thermocouples yields temperature values which are 150 to 250 C higher for a temperature of 700 C as compared to the values obtained by gas analysis. The greater temperature values measured by thermocouples as compared to the average temperature is attributed to chemical reactions taking place at the joint of the thermocouple.
There are 6 figures and 4 Slavic references.

SUBMITTED: January 22, 1957.

AVAILABLE: Library of Congress

Card 3/3

AUTHOR: VLASOV,K.P.
TITLE: On the Question of the Method of Determinig the Turbulent
           Velocity of the Propagation of Flames. (K voprosu o metode
           opredeleniya turbulentnoy skorosti rasprostraneniya plameni,
           Russian).

ABSTRACT: The present stage of development does not make it possible to
           obtain quantitative relations between the turbulent velocity
           of combustion and the gasodynamic and physical-chemical charac-
           teristics of an induction mixture. According to the author's
           opinion an accurate definition of the conception of the turbulent
           velocity of flame propagation would at first be necessary. Not
           one of the hitherto known practical methods of determination is
           accurate. Essential difficulties are caused by the practical
           determination of u_t (turbulent velocity of the propagation of
           flames). In the present work possible methods of an experimental
           determination of flame boundaries in a turbulent flow are in-
           vestigated. They are devided into two groups: 1. Measurements
           with the help of inertialess devices, and 2. Measurements with
           the help of devices, which average their recordings according
           to time. The first group comprises: a) Measuring of the ionization
           current in the flame, b) the rapid photography of the optical

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PA - 2130

On the Question of the Method of Determining the Turbulent
Velocity of the Propagation of Flames.

dissimilarities or self-luminescence of the torch. The second
group comprises: a) Photographing the torch by long exposure,
b) Measuring of the temperature of the flame, c) Analysis of the
gas. d) Measuring of the total pressure within the combustion
zone. The most essential disadvantage of inertialess measuring
methods is the impossibility of determining the average static
boundaries of the flame. The lower the depth of the torch, the
more accurate results are obtained by the method of rapid photo-
graphy. This accounts for the high accuracy of the method of the
ionization donor. There follows a somewhat more detailed ex-
amination of the ionization method.

For the determination of the averaged boundaries of the flame
a method was applied which is based on the following: a series
of instaneous photographs of the distribution of the ionization
current in the cross section of the flame torch were taken and
statistically worked out. For this purpose the ionization donor
had to pass through the flame torch that moment, at which the
ionization current was fixed rapidly at the oscillograph. In
order to be able to check the accuracy of the recordings of the

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On the Question of the Method of Determining the Turbulent
Velocity of the Propagation of Flames.

ionization donor, silhouettes of the flame torch were photo-
graphed simultaneously by means of a motion-picture camera.
(6 illustrations).

ASSOCIATION: Not given.
PRESENTED BY:
SUBMITTED: 26.3.1954
AVAILABLE: Library of Congress.

Card 3/3

28332   S/124/61/000/005/019/032
A005/A130

11. 7200

AUTHORS: Vlasov, K. P., [Kokushkina, N. V.]

TITLE: Experimental investigation of the combustion zone of a turbulent flame (Addition to the report of Ye. S. Shchetnikova)

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 5, 1961, 92 - 93, abstract 5B561. (V sb.: Goreniye v turbulentn. potoke. Moscow, AN SSSR, 1959, 51 - 57)

TEXT: See the report in: Sb.: Goreniye v turbulentn. potoke. Moscow, AN SSSR, 1959, 5 - 50. - RZhMekh, 1961, 2B503. - In order to study the structure of the combustion zone, the authors carried out low-inert measurements of the ionized stream in a turbulent flame from a flat burner (350 - 200 mm) with stream veloci- ties ranging from 8 to 45 m/sec, values of α from 0.6 to 1.5, and a temperature of the prepared mixture of about 160°C. The flame tongue was kept 10 mm wide behind the channeled stabilizer. The ionization feeler and the recording apparatus allow- ed recordings without signal distortions with frequencies up to 6 - 8 kc. Oscil- lograms were taken of the ionization current when the feeler was placed at vari- ous points of a fixed cross section of the flame tongue. The ionization current versus time curves show different "splash" amplitudes; all minima correspond to

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Experimental investigation of the...

the initial mixture, but it was not feasible to determine sections with an ioniza-
tion corresponding to combustion products. Processing of the oscillograms reveal-
ed that the ionization "splashes" are caused by gas volumes with dimensions in
the range from 3 - 4 mm to 60 - 80 mm. The linear dimensions of these volumes
vary little with stream velocity and depth of immersion of the feeler into the
flame tongue (within the combustion zone), while the frequency of their appearance
increases linearly with increasing stream velocity. In the author's opinion, it
is easier to explain the experimental results from the viewpoint of the volume
pattern of turbulent combustion than from the viewpoint of the surface pattern,
but the problem of the existence of laminar fronts in the turbulent flame tongue
which are widened by fine-scale turbulence is not yet solved.

A. Istratov

[Abstracter's note: Complete translation]

Card 2/2

VLASOV, K.P.; INOZEMTSEV, N.N.

Effect of initial parameters of a flow on turbulent flame velocity of homogeneous fuel-air mixtures. Izv. vys. ucheb. zav.; av. tekh. 2 no.1:38-45 '59.   (MIRA 12:3)

1.Moskovskiy aviatsionnyy institut, Kafedra teplovykh dvigateley.
(Combustion)

24,5400
11 (1)

68784
S/170/59/002/12/014/021
B014/B014

AUTHOR: Vlasov, K. P.

TITLE: In Connection With the Determination of the Width of the Combustion Zone of a Turbulent Flame

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1959, Vol 2, Nr 12, pp 83-85 (USSR)

ABSTRACT: By way of introduction the author presents a critical analysis of the results hitherto obtained by determining the width of the combustion zone. Three relations are given for the approximate calculation of the width (Refs 4, 5, and 10). Several authors (Refs 7 and 9) believe that width is greatly influenced by turbulence. Some factors interfering with the determination of width are enumerated, after which the action of turbulence on the combustion is explained using K. I. Shchelkin's physical model. Experimental values are graphically represented in the diagram of figure 1, which shows the dependence of the width on the distance from the source of ignition. This dependence is illustrated by an approximate curve. There are 1 figure and 11 references, 10 of which are Soviet.

Card 1/1

SOV/24-59-3-15/33

AUTHOR: Vlasov, K. P. (Moscow)

TITLE: The Connection Between Values of Flame Temperature, Measured by Optical and Other Methods

ABSTRACT: A number of investigations have shown that optical methods indicate higher temperatures in the combustion zone of a turbulent flame than do other methods. The explanation of this effect was given in Ref 1, where it was shown that the temperature fluctuations at a point cause the optical methods to indicate a higher temperature than that corresponding to the time average value. In the present paper the application of optical methods (spectral line reversal and infra-red pyrometry) to the measurement of turbulent flame temperature is discussed and a connection found between the thermodynamic temperature and the temperatures measured optically. It is also possible from measurements of combustion temperature made by the spectral line reversal method to compute the mean square value of the pulsating temperature caused by the inadequate micro-mixing of heat and air which often occurs in ordinary technical equipment. There are 3 figures, 1 table and 2 Soviet references.

Card 1/2

SOV/96-59-9-18/22

AUTHOR :   Vlasov, K.P. (Candidate of Technical Sciences)
TITLE: The Measurement of Flame Temperature by Optical Methods
PERIODICAL: Teploenergetika, 1959, Nr 9, pp 87-89 (USSR)

ABSTRACT: It has been found that measurement of flame temperature
by optical methods usually gives high results as compared
with other methods. This has been attributed to large
temperature variations with time in the flame. Thus the
instrument measures not the mean temperature but the mean
energy of radiation. The point is confirmed by
consideration of Eq (1).   However, accurate values of
mean temperature can be derived from optical measurements.
In Fig 1 graphs are plotted of experimental and theoreti-
cal temperature profiles across the section of a turbulent
flame and it is seen that the optically determined values
are all high. The inverse problem is then put of
determining the true temperature from the optically-
measured values and Eq (5) is introduced. The results
are plotted graphically in Figs 2 and 3 and it will be
seen that the calculated and experimental values are in
good agreement.   This method of correcting the readings
Card 1/2 of optical instruments is accordingly recommended.

SOV/96-59-9-18/22

The Measurement of Flame Temperature by Optical Methods

It is also shown that for certain compositions of fuel mixture the values of combustion temperature determined optically across the axis of a flame are too high, and this is attributed to variations in the fuel mixture composition with time.

Card 2/2 There are 3 figures and 3 references, 2 of which are Soviet and 1 English.

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SOV/115-60-1-18/28

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AUTHOR: Vlasov, K.P.

TITLE: Errors in Temperature Measurements of Turbulent
               Flames by Optical Methods

PERIODICAL: Izmeritel'naya tekhnika, 1960, Nr 1, pp 40-44 (USSR)

ABSTRACT: The author discusses the results of previous experi-
               mental work /Ref 1, 2/ in which he participated and
               makes a brief review of other data /Ref. 3/. In his
               experiments, /Ref. 2/ spectrum line inversion (of
               sodium or other metals) and infrared pyrometers were
               used. Details of the experimental techniques are
               given. For measuring flame temperature an "OFO" de-
               vice was used in conjunction with an infrared bright-
               ness pyrometer. The optical systems of the instru-
               ments are shown in two diagrams (Fig 2, 3). The gas
               analysis method and a platinumrhodium-platinum ther-
Card 1/3   mocouple were also used. It is concluded that:

Errors in Temperature Measurements of Turbulent Flames by Optical Methods

1) The discrepancies in temperature values measured by optical as opposed to other methods can be explained by theoretical consideration of the optical measurements giving mean temperature values, assuming that temperature fluctuations in the flame follow the law expressed by

$$t = T_2 P_2 + T_1(1 - P_2);$$

2) Overstatement of the adiabatic combustion temperatures along the axis of the flame tongue, where combustion was completely finished at fuel composition $\alpha \gtrless 0.8 - 1.1$, can be explained by temporal fluctuations of the mixture, but a marked share of heterogeneity (P_2) has also to be supposed.

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Errors in Temperature Measurements of Turbulent Flames by Optical Methods

3) The analysis shows that in principle, it is possible to calculate the true temperature value by the measured values of the optical temperature. There are 2 diagrams, 4 graphs and 3 references, of which 2 are Soviet and 1 English.

Card 3/3

31303
S/124/61/000/010/038/056
D251/D301

11.7430

AUTHORS: Vlasov, K.P. and Inozemtsev, N.N.

TITLE: Investigating ionization in laminar and turbulent
              streams

PERIODICAL: Referativnyy zhurnal. Mekhanika, no. 10, 1961, 89,
              abstract 10 B630 (V sb. 3-e Vses. soveshchaniye po
              teorii goreniya, v. 1, M., 1960, 60-71)

TEXT: Experimental measuring of the ionization of propane-
air and benzo-air flames was carried out by means of a diodal sensor
in the form of a two-channel ceramic with fixed receiver-electrodes.
The ceramic served as an insulator, the electrodes touched the par-
ticles of the flame only with their end surfaces. The ionization
current was amplified by a single-valve amplifier and then applied
to the intake of the amplifier of a cathode impulse oscillograph
25 И (25I). The sensor was moved by hand in the flame with a velo-
city of 1-2 m/sec or else pneumatic streaming of the flame was appl-

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Investigating ionization...

ied to the sensor with a velocity of 10-20 m/sec. The outer diameter
of the ceramic was 1 mm for a laminar flame and 3 mm for a turbulent
flame. The investigation showed that in all cases the speed of ion-
ization was proportional to the speed of chemical reaction. The con-
centration of electrons directly behind the flame front is approxim-
ately 500 times less than in the front itself. With $\alpha = 0.9$ and
the pressure $p = 1$ atm, the concentration of electrons in the front
of a laminar flame is approximately 2×10^7 cm^{-3}. In the turbulent
flame a wide zone of non-equilibrium ionization was discovered, with-
in which bumps of the ionization current occur. On increasing the
pressure from the stabilizer, the breadth of this zone increases,
but the height decreases. The maximum ionization in the turbulent
flame is 10 times less than in the laminar flame, other conditions
being equal. Detailed investigation of the ionization showed that
in the turbulent flame there are no laminar fronts, self-ignition
and combustion proceed within the wide zone of chemical reaction in
discrete foci-moles having various dimensions. The position of the
front boundary of the zone of reaction in these experiments depended

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D251/D301

Investigating ionization...

only upon the initial parameters of flow. The authors present the
turbulent flame as created from the zone of heating where there is
intensive mingling of the products of combustion with the active
mixture, the zone of chemical reactions, and the zone of the pro-
ducts of combustion with partial burning. In conclusion it is dedu-
ced that in the turbulent flame, the definitive processes are turbu-
lent diffusion, kinetics of the chemical reactions and the tempera-
ture. /Abstracter's note: Complete translation_/

X

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69323

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E022/E535

26 5006

AUTHOR: Vlasov, K. P. (Moscow)

TITLE: On the Solution of a Simple Combustion Chamber

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya
            tekhnika, 1960, Nr 1, pp 104-110 (USSR)

ABSTRACT: The usual practice for obtaining the solution of a simple
            combustion chamber is to determine the extent of the
            flame, the pressure gradient and the deviation from the
            complete combustion along the chamber assuming a point
            burner, a homogeneous mixture and constant intensity (ε)
            as well as scale (ℓ) of the turbulence. This approach
            presents some difficulties in obtaining the final solution;
            among other reasons this is due to the uncertainty about
            such parameters as the velocity of the flame spread (U_T),
            the width of the zone of combustion (δ_T) and the time
            of combustion (τ_{com}).   Recent experimental investigations
            (Refs 5 and 6) indicate that the width of the zone of
            combustion depends strongly not only on the distance (x)
            of each cross-section from the burner but also on the
Card 1/5   diameter (d) of the combustion chamber, i.e. on the

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On the Solution of a Simple Combustion Chamber

relative distance $\bar{x} = \frac{2x}{d}$. Also, following Shchelkin's model of combustion, the width of the zone of turbulent combustion is determined by the depth of the deforma-tions of the flame boundary (these deformations, caused by pulsations of the flame tongue are dependent on the mean static dislocation (σ) of the flame element). Thus $\delta_T \sim \sigma$, and, as shown by Scurlock and Grover (Ref 7) σ can be determined, Eqs (a) or (b), p 105. The manner of the temperature and velocity variation across the flame mantle can be found, if the fluctuation of the turbulent flame front is assumed to obey the Gauss law (Ref 8). In this case the time mean temperature will vary linearly at the depth $\delta_T \simeq 3\sigma$, and so will the velocity. With the symbols as used by A. V. Tantalov (Ref 1) and for the case of cylindrical combustor the following parameters are then sought: u_c, τ_c - the dimensionless velocity and the temperature, respectively, of the fresh mixture,

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On the Solution of a Simple Combustion Chamber

u_n, τ_n - the dimensionless velocity and the temperature of the products of combustion, p_x - pressure and η_c, η_n - the ordinates of the starting point of the flame front and the end of the zone of combustion respectively. Suffix '3' denotes parameters inside the zone of combustion. Employing the usual equations of energy, conservation of mass, momentum, and the relation of Eq (1) (see Ref 10), Eqs (6) and (7) are eventually derived. Δx being the distance between any two consecutive cross-sections of the flame mantle. Fig 1 represents the theoretical relationship between $\bar{\sigma} = 2\sigma/d$ and $\bar{x}$ obtained from these relations. The experimental data for the case of the open flame in the cylindrical combustor agree very well with the curve, hence $\bar{\sigma}$ may be taken from this graph. Next the results of this computation are compared with the analysis of Tantalov (Ref 1); this is shown in Fig 2. The forward boundary of the flame front is almost identical in both cases, but the rear boundary differs fairly

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On the Solution of a Simple Combustion Chamber

substantially. This can be explained by the fact that δ_T and τ_{com} are evaluated differently in these two methods. The figure also shows clearly the effect of u_T on the result: curves 3 having u_T changed differ substantially from the previous curves (2). Therefore, some experiments were carried out for determining the dependence of u_T on the fundamental parameters of the burning mixture. The combustor used had a diameter of 150 mm, a flame tube length L_r = 720 mm and a flame stabilisor of 12 mm diameter. Figs 3 and 4 show the results of these experiments, the former giving the variation of the relative value of the turbulent burning velocity as a function of the normal velocity of burning, and the latter as a function of the stream velocity. It is found that the order of magnitude of u_T is u_T = 0.5 to 1.5 u', which agrees very well with the theory of turbulent combustion. The limits of the

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E022/E535

On the Solution of a Simple Combustion Chamber

flame mantle in the cylindrical combustor were also
measured in these experiments, viz. by employing
ionization pick-ups as well as by means of direct
photography through a window in the combustor wall.
These results are compared with the theory and are
shown in Fig 5. All the experimental data agree closely
with the theory.
There are 5 figures and 10 references, 8 of which are
Soviet and 2 English.

SUBMITTED: March 16, 1959

Card. 5/5

31586
S/124/61/000/011/034/046
D237/D305

11.7200

AUTHORS: Vlasov, K.P., and Dubrovskaya, O.N.

TITLE: Determining the temperature of turbulent flames by optical methods

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 11, 1961, 101-102 abstract 11B679 (Sb. 3-ye Vses. soveshchaniye po teo- rii goreniya, v. 1, M., 1960, 114 - 120)

TEXT: The authors venture an opinion on the relation between the degree of homogeneity of a turbulent stream of burning mixture and the deviation of temperature (which is measured by spectral line displacements) from the mean temperature of the flame obtai- ned by some other method. Nonuniformity of composition of the mix- ture and temperature fluctuations w.r. to time, always results in an increase of temperature which is measured by optical methods based on the measurement of radiant energy. That means that on the average, high temperatures have more influence on the results, than the low ones. The relation is given to determine the mean tem-

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Determining the temperature of ...

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perature from the results given by optical apparatus. It follows
from this relation that the measured mean temperature approaches
the mean thermodynamical value with an increase of the wavelength
of light. Hence, for turbulent flames, readings obtained in the
infra-red range are closer to theoretical than those obtained in
the visible, or ultraviolet range. The results are given of the
experimental check of the rise of temperature of turbulent flames
obtained by spectral line displacement, against those obtained by
means of an infra-red pyrometer. It is seen that when the mixing
is adequate then the temperature measured by the method of line
displacement is close to expected theoretical values except for
the regions of high values which can be explained by inadequate
mixing in those regions. [Abstractor's note: Complete translation]

Card 2/2

80956
S/024/60/090/03/022/028
E081/E441

26.5000

AUTHORS: Vlasov, K.P. and Inozemtsev, N.N. (Moscow)

TITLE: The Feasibility of Investigating the Fine Structure of Turbulent Flames by Means of the Resistance Thermometer Method

ABSTRACT: In Ref 1, a resistance thermometer was used to investigate temperature fluctuations in a turbulent flame. The sensitive element of such a thermometer consists of a fine platinum or tungsten wire. On instantaneously transferring the wire from a medium at temperature T_1 the heat balance equation is Eq (1), where m is the mass of the wire, c the heat capacity and α the coefficient of heat emission. The solution of Eq (1) is Eq (2), where T_H is the temperature of the wire, t is time and τ is the time constant of the wire. This equation corresponds to a sudden change in temperature but if in a flame there is a relatively large zone with intermediate temperature, the heat balance is expressed by Eq (3) of which the solution is Eq (4);

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The Feasibility of Investigating the Fine Structure of Turbulent
Flames by Means of the Resistance Thermometer Method

t_{f} is the time of intersection of the front by the
wire. The two solutions (2) and (3) are compared in
Fig 1. (Change of relative temperature of the wire with
time for various ratios of the time of intersection of
the front to the time constant of the wire.)
With the aid of Fig 1 and 2 (Fig 2: Determination of the
errors of finding "defects") the uncertainties of the
method used in Ref 1 to detect the "defects" (regions
where the curve $T_H = f(t)$ deviates from the normal
exponential curve (2)) are evaluated.   The determination
of the mean temperature for a rectangular and a
trapezoidal profile (Fig 3) is also considered.
Experiments were carried out with a propane-air bunsen
flame using a resistance thermometer and the apparatus
described in Ref 1.   Fig 4 shows some of the temperature
records (oscillographic temperature records with a
resistance thermometer in the cross-section of a bunsen
flame at different traverse velocities W: a – tungsten
Card 2/3   wire, diameter 15 μ ; b – tungsten wire, diameter 5 μ)

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E081/E441

The Feasibility of Investigating the Fine Structure of Turbulent
Flames by Means of the Resistance Thermometer Method

and indicates the very considerable effect of the
traverse velocity. The effect of the time constant of
the wire on the shape of the output wave may be shown
by means of the circuit of Fig 5. (Fig 5: a and b -
Input and output impulses; B - scheme of model
arrangement, 1 - amplitude limiter, 2 - rectifier,
3 - integrating circuit, 4 - resistive load.)
Fig 6 shows the input and output pulses of a square and
trapezoidal wave with a time constant $\approx 0.5 \times 10^{-3}$ sec,
approximately the same as that of the $5\,\mu$ diameter wire
used in Ref 1. It is concluded that resistance
thermometers with wire $> 3 - 5\,\mu$ diameter are unsuitable
for investigating the fine structure of turbulent flames
because they do not detect zones with intermediate
temperature less than 6 to 10 mm in size. There are
6 figures and 1 Soviet reference.

SUBMITTED: May 15, 1959

Card 3/3

4

VLASOV, K.P.

PHASE I BOOK EXPLOITATION   SOV/5752

Gorbunov, G. M., Candidate of Technical Sciences, Docent, ed.

Stabilizatsiya plameni i razvitiye protsessa sgoraniya v turbulentnom
    potoke; sbornik statey (Stabilization of the Flame and the De-
    velopment of the Combustion Process in a Turbulent Flow; Collection
    of Articles) Moscow, Oborongiz, 1961. 169 p. Errata slip inserted.
    2,650 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo
    obrazovaniya RSFSR.

Ed.: K. Ya. Zaytseva, Engineer; Ed. of Publishing House: N. G.
    Kopylova; Tech. Ed.: V. P. Rozhin; Managing Ed.: A. S. Zaymovskaya,
    Engineer.

PURPOSE: This collection of articles is intended for engineers and
    scientific workers concerned with combustion problems, and for
    advanced students in related courses in schools of higher tech-
    nical education.

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Stabilization of the Flame (Cont.)

SOV/5752

COVERAGE: The collection contains 7 articles describing experi-
mental investigations of the mechanism of flame stabilization
and propagation in open and closed turbulent flows. Experi-
mental data on intensity, extent and frequency patterns of tur-
bulence, temperatures, flame ionization, etc., are presented.
The investigations contribute to a better understanding of some
of the phenomena taking place in a ramjet combustion chamber.
The authors thank V.B. Rutovskiy, I. S. Makarov, A. V. Goryacheva,
V. I. Biteryakova, and Ye. V. Trofimova. References accompany
six articles.

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Foreword

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11-6-61

VLASOV, K.P.; DUBROVSKAYA, O.N.

Reasons for obtaining excessive results in temperature measurements by optical methods. Konstr. uglegraf. mat. no.1:339-345 '64.   (MIRA 17:11)

AID Nr. 987-4   11 June

STRUCTURE OF TURBULENT FLAMES (USSR)

VLASOV, K. P.

Dubrovskaya, O. N., K. P. Vlasov, and N. I. Inozemtsev. IN: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk. Energetika i transport, no. 2, Mar-Apr 1963; 214-220.   S/281/63/000/002/003/003

The structure of turbulent gasoline-air flames was studied at flow velocities of 25 to 150 m/sec and 0.8 to 1.8 excess air in a burner 300 mm in diameter, equipped with a conical flame holder 22 mm in diameter. Simultaneous measurements were made with an ionization gauge, a resistance thermometer, and an infrared pyrometer, and by Schlieren photography and spectrographic recording of radical emission. The results showed that the reaction takes place stepwise in sections having a length of 8-10 mm in the direction of flow. Ionization in the individual sections is 4 to 5 times less than in laminar flames, indicating a basic difference between turbulent and laminar flame mechanisms. The effect of excess air on the chemical reaction rate is less pronounced in turbulent than in laminar flames. The zone of intensive chemical reaction is preceded by a preheating zone which contains combustion products transmitted by turbulent diffusion. The maximum emission of intermediate combustion products corresponds to 82% conversion, rather than the 50% postulated by the model based on laminar flame pulsations.   [PV]

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37915

/000/006/003/021

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+6.2131

AUTHOR: Vlasov, K..

TITLE: On the computation of a uniflow combustion chamber
            of simple design.

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk.42. Silovye
            ustanovki, no.6, 1962, 28, abstract 42.6148 (V sb.
            "Stabilizatsiya plameni i razvitiye protsessa sgora-
            niya v turbulentn. potoke". M., Oborongiz, 1961,128-
            146).

TEXT: A system of equations is studied, characterizing the flow
of a combustible mixture in a cylindrical tube with a point source
of ignition.   A critical review is given of certain previous works
in which various additional conditions were assumed for the closing
of an equation system;   the dependence of the combustion zone
width (or of the combustion time) and turbulent-flame propagation
velocity on the initial parameters is analysed.   For the closing

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On the computation of a uniflow S/262/62/000/006/003/021
                                        I007/I207

of this equation system the condition suggested by Тзян (Tzyan)
was adopted while, according to existing concepts based on Shchel-
kin's physical model [Abstractor's note: of combustion], the com-
bustion-zone width in turbulent flames is defined as the radius of
bending of the flame front under the action of turbulent fluctua-
tions. A method is suggested for the measurement of the combustion-
zone width according to records of individual flame fluctuations
measured by ionization probes. This method permits the obtaining
of the relation between the combustion-zone width and the distance
from the ignition source. Such an approach makes it possible to
design the combustion chamber (combustor) by the method of succes-
sive approximations (from zone to zone). When calculations are
made according to experimental data, use may be made of the law of
linear variation of temperature and velocity in the turbulent
flame. Another method is suggested for the calculation of the
overall length of the combustion chamber and the absolute velocity
of turbulent combustion, this method being based on ordinary test-
ing data on combustion chambers, e.g. data on variation of

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On the computation of a uniflow ...   S/262/62/000/006/003/021
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statistical [Abstractor's note: obviously a misprint, should
read statical] pressure along the combustion chamber. Results are
presented on the investigation of a combustion chamber of 150 mm
diameter and a combustion-section length of 720 mm. Ignition and
flame stabilization in the combustion chamber were achieved by
means of a conical stabilizer (flame holder) of 12 mm diameter;
during testing both approach-velocity and mixture-composition were
varied. The order of magnitude of turbulent-combustion velocity
was measured in comparison with the values of fluctuating and
normal burning velocities. There are 15 bibl. references.

[Abstractor's note: Complete translation.]

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35743
S/124/62/000/003/016/052
D237/D301

11.5000

AUTHOR: · Vlasov, K.P.

TITLE: Design of the simplest combustion chamber of the
            rectilinear flow type

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 3, 1962, 44,
            abstract 3B252 (Sb. Stabilizatsiya plameni i razvitiye
            protsessa sgoryaniya v turbulentn. potoke, M., Oboron-
            giz, 1961, 128 - 148)

TEXT: A review is given of the work on solving the problem of fla-
me propagation in a cylindrical tube with ignition by the point
source. A method of determining the shape of the flame stabilized
in a chamber of the rectilinear flow type, is described. The choice
of basic characteristics of the turbulent flame propagation is con-
sidered in detail, and those chosen are velocities of propagation
of a turbulent flame and widths of combustion zones. The idea be-
hind the proposed design method is to enclose the basic gas-dynamic
equations of flow of a combustible mixture in a cylindrical tube
with a point igniter by introducing one additional condition - that ∫
Card 1/2

Design of the simplest combustion ...   S/124/62/000/003/016/052
                                          D237/D301

of dependence of the width of combustion zone on the distance to
the igniter. Described are the results of the experimental investi-
gation of the combustion chamber of the rectilinear flow type (dia-
meter – 150 mm, length of the burning part – 720 mm) with a coni-
cal stabilizer of 12 mm diameter. Velocity of the incident air
stream and composition of the mixture were varied. During the expe-
riment the distribution of static pressure was measured along the
length of the chamber. A comparison of calculated and measured po-
sitions of the flame jet boundaries was made, and good agreement
was obtained. 15 references. [Abstractor's note: Complete transla-
tion].

Card 2/2

SAMSONOV, G.V.; KISLYY, P.S.; VLASOV, K.R.

Extrusion of protective sheaths for thermocouples. Ogneupory
28 no.7:311-312 '63.   (MIRA 16:9)

1. Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR.

S/0133/64/000/003/0216/0218

ACCESSION NR: AP4019470

AUTHORS: Samsonov, G. V.; Reshetnyak, Yu. S.; Vlasov, K. R.

TITLE: Applying thermocouples encased in zirconium diboride for continuous measurement of liquid metal temperature in an oxygen converter

SOURCE: Stal', no. 3, 1964, 216-218

TOPIC TAGS: thermocouple, chromel-alumel thermocouple, zirconium diboride protective casing, oxygen converter, liquid metal temperature, continuous temperature measurement

ABSTRACT: The chromel-alumel thermocouples clad in three-layer protective casings of ZrB_2 were used for a continuous measurement of liquid metal temperature in a converter during the process of oxygen blowing. The protective casings were 15 mm in diameter and 140-150 mm long, with a wall thickness of 2 mm. The thermocouples were installed in the refractory lining of the converter at different distances from the bottom in such a way that their ends protruded into the converter for 22 to 38 mm. These ends were made of 3 layers, one of alundum, one of ZrB_2, and one of aluminum oxide powder poured between the other two layers. ZrB_2 was produced by

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ACCESSION NR: AP4019470

mixing fine zirconium diboride powder with a starch glue (140 grams of glue per 1 kg of ZrB_2 powder). The mixture was cooked until it became transparent, then pressed and baked at 2150-2200C for 40 minutes. The authors believe that the use of such protective coatings will aid substantially in the automation of the melting process. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 00   DATE ACQ: 27Mar64   ENCL: 00

SUB CODE: ML   NO REF SOV: 005   OTHER: 000

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SAMSONOV, G.V.; RESHETNYAK, Yu.S.; VLASOV, K.R.

Using thermocouple sheaths of zirconium diboride for the con-
tinuous measurement of the temperature of liquid metal in oxygen-
blown converters. Stal' 23 no. 3:216-218 Mr '64. (MIRA 17:5)

L 18556-63   EPR/EWT(1)/BDS   AFFTC/ASD   Ps-4   WW

ACCESSION NR: AP3004262   8/0131/63/C00/007/0311/0312

AUTHOR: Samsonov, G. V.; Kisly*y, P. S.; Vlasov, K. R.   66

TITLE: Forming protective thermocouple caps

SOURCE: Ogneupory*, no. 7, 1963, 311-312

TOPIC TAGS: protective cap, thermocouple, press, carbide, boride, silicide, aluminum oxide, zirconium oxide

ABSTRACT: A press has been developed for forming one-piece protective caps for thermocouples used in steel and iron smelting. To form a cap, plastic material is placed in cylinder (5) (see Enclosure) and pressed with plunger (9) into the annulus between the centered hollow needle (4) and the interchangeable inset (2). The head of the cap is formed in the base (12). To allow for passing of air, a steel rod (8) is removed from the hollow needle. Using this press, the authors prepared protective caps of carbides, borides, silicides, aluminum oxide, and zirconium oxide. Orig. art. has: 1 diagram.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov, AN USSR (Institute of Metal Ceramics and Special Alloys, Academy of Sciences, Ukrainian SSR)

SUBMITTED: 00	DATE ACQ: 20Aug63	ENCL.: 01	
SUB CODE: MA,ML	NO REF SOV: 001	OTHER: 000	
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VLASOV, Kh., gvardii inzh.-mayor

Improving the roadability of motor vehicles. Za rul. 16 no.3:13-14
Mr '58.   (MIRA 13:3)
          (Motor vehicles--Dynamics)

BEUS, Aleksey Aleksandrovich; VLASOV, K.A., otv.red.; TARASOV, L.S.,
    red.izd-va; POLENOVA, T.P., tekhn.red.

    [Geochemistry of beryllium and genetic types of beryllium
    deposits] Geokhimiia berilliia i geneticheskie tipy berillie-
    vykh mestorozhdenii. Moskva, Izd-vo Akad.nauk SSSR, 1960.
    328 p.   (MIRA 13:4)

    1. Chlen-korrespondent AN SSSR (for Vlasov).
                    (Beryllium)

VLASOV, Khrisanf Vasil'yevich; YEVTYUKHIN, Ivan Yegorovich; SEREBRYAKOV,
Yuriy Fedorovich; GOLOSHCHAPOV, I.M., red.; KONOVALOVA, Ye.K.,
tekhn.red.

[Driving motor vehicles under difficult conditions] Vozhdenie
avtomobilia v slozhnykh usloviiakh. Moskva, Voen.izd-vo M-va
obor.SSSR, 1959.   133 p.   (MIRA 13:3)
                    (Automobile drivers)

BELYANKIN, D.S., akademik; BETEKHTIN, A.G., akademik; BORISYAK, A.A.,
akademik; GRIGOR'YEV, A.A., akademik; NALIVKIN, D.V., akademik;
SHATSKIY, N.S., akademik; VLASOV, K.V.; ZHEMCHUZHNIKOV, Yu.A.;
ORLOV, Yu.A.; FEDOROV, S.F.; KUZNETSOV, I.V., red.;
MIKULINSKIY, S.R., red.: KUZNETSOVA-YERMOLOVA, Ye.B., red.;
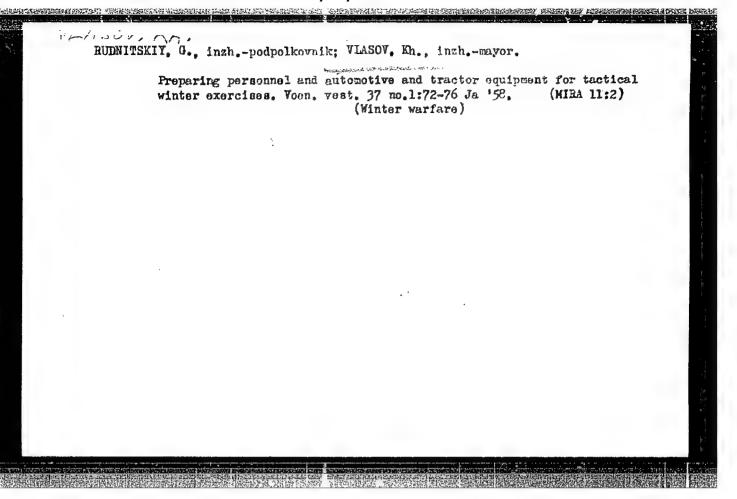KRYUCHKOVA, V.N., tekhn. red.

[Russian scientists; sketches about outstanding workers in
natural sciences and technology; geology and geography] Liudi
russkoi nauki; ocherki o vydaiushchikhsia deiateliakh este-
stvoznaniia i tekhniki. Geologiia, geografiia. Moskva, Gos.
izd-vo fiziko-matem. lit-ry, 1962. 579 p.   (MIRA 15:3)

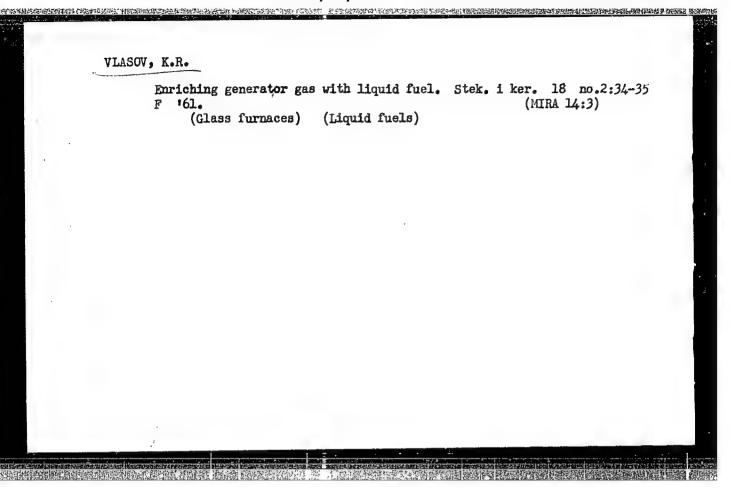1. Chlen-korrespondent Akademii nauk SSSR (for Vlasov, Zhem-
chuzhnikov, Orlov, Fedorov).
          (Geology)   (Geography)

VLASOV, Khrisanf Vasil'yevich; YEVTYUKHIN, Ivan Yegorovich;
    SEREBRYAKOV, Yuriy Fedorovich; OKUNEV, Yu.K., red.

    [Motor-vehicle driving under difficult conditions] Vozh-
    denie avtomobilia v slozhnykh usloviiakh. Izd.2., dop.
    Moskva, Voenizdat, 1964. 166 p.   (MIRA 17:9)

RUDNITSKIY, G., inzh.-podpolkovnik; VLASOV, Kh., inzh.-mayor.

Preparing personnel and automotive and tractor equipment for tactical winter exercises. Voen. vest. 37 no.1:72-76 Ja '58.   (MIRA 11:2)
(Winter warfare)

VLASOV, K.R.

Enriching generator gas with liquid fuel. Stek. i ker. 18 no.2:34-35
F '61.   (MIRA 14:3)
    (Glass furnaces)   (Liquid fuels)

VLASOV, K.R.

Exchanging regenerator nozzles in running tank furnaces. Stek.i
ker. 17 no.3:16-18 Mr '60.   (MIRA 13:6)
                    (Glass furnaces)

VLASOV, L., michman zapasa

A word about discipline. Starsh.-serzh. no.10:9 O '61.
(MIRA 15:2)

(Naval discipline)

BOBROV, L.; VASILEVSKIY, V.; VLASOV, L.; DRAGUNOV, E.; KAPUSTINSKAYA, K.;
    KARELIN, V.; LOSHCHILOV, G.; MAKARENYA, A.; MEDVEDEV, Yul.;
    ROMAN'KOV, Yu.: SENCHENKOVA, T.; SENCHENKOV, A.; TRIFONOV, D.;
    ANTOYUK, L., red.; LESHCHINSKAYA, G., tekhn. red.

[Journey into the land of the elements] Puteshestvie v stranu
elementov. [By] L. Bobrov i dr. Moskva, "Molodaia gvardiia,"
1963. 366 p.   (MIRA 16:10)
                    (Chemical elements)

VLASOV, Lev Aleksandrovich

[All is quiet in the compartments] V otsekakh tishina.
Moskva, Voenizdat, 1964. 91 p.   (MIRA 18:4)